

CLAIMS

What is claimed is:

1. A method of fabricating a tank substructure, the method comprising:
forming a framework of a tank, wherein the framework comprises a first end plate, a second end plate and at least one interior wall;
sizing a sheet such that a first end of the sheet will define a portion of a first surface of the tank and a second end of the sheet will define another portion of the first surface of the tank when the sheet is placed in contact with the framework of the tank such that the sheet circumscribes a portion of a periphery of the first end plate or the second end plate;
placing a portion of the sheet in contact with the framework of the tank, such that the sheet circumscribes a portion of a periphery of the first end plate or the second end plate, and such that the sheet circumscribes a portion of a periphery of the at least one interior wall, such that a first end of the sheet defines a portion of a first surface of the tank and a second end of the sheet defines another portion of the first surface of the tank, wherein a portion of the sheet disposed between the first end and the second end defines a portion of a second, opposing surface of the tank; and
forming a seam between the sheet and the framework, wherein the seam is formed on an exterior of the tank.
2. The method according to claim 1, wherein forming the seam comprises welding the sheet to the framework.
3. The method according to claim 1, wherein sizing a sheet such that a first end of the sheet will define a portion of a first surface of the tank and a second end of the sheet will define another portion of the first surface of the tank comprises preshaping the sheet by rolling with a mechanical roller or forming multiple small bends with a press brake.

4. The method according to claim 1, further comprising:
attaching a flange to an exterior edge of the at least one interior wall; and
wherein forming the seam comprises welding the sheet to the flange.

5. The method according to claim 1, wherein placing the portion of the sheet in contact with the framework of the tank comprises wrapping the sheet around the framework.

6. The method according to claim 5, further comprising:
forming a first opening in the sheet, wherein the first opening is substantially aligned with the periphery of the first end plate when the sheet is placed in contact with the framework of the tank;
forming a second opening in the sheet, wherein the second opening is substantially aligned with the periphery of the second end plate when the sheet is placed in contact with the framework of the tank; and
forming a third opening in the sheet, wherein the third opening is substantially aligned with the periphery of the at least one interior wall when the sheet is placed in contact with the framework of the tank;
wherein forming the seam between the sheet and the framework comprises welding the framework of the tank to an inside edge of the first opening, the second opening, and the third opening.

7. The method according to claim 1, wherein forming the framework of the tank further comprises:
attaching the first end plate to a first transverse interior wall;
attaching the second end plate to a second transverse interior wall; and
attaching the first transverse interior wall and the second transverse interior wall to the at least one interior wall.

8. The method according to claim 1, further comprising:
placing a plate over an edge of the at least one interior wall on the first surface of the tank;
wherein the plate is juxtaposed between the first end and the second end of the sheet.

9. The method according to claim 1, further comprising:
placing a portion of a second sheet in contact with the framework of the tank, such that the second sheet circumscribes a portion of a periphery of the first end plate or the second end plate, and such that the second sheet circumscribes a portion of a periphery of the at least one interior wall;
forming a second seam between the second sheet and the framework, wherein the seam is formed on an exterior of the tank.

10. The method according to claim 9, wherein forming the second seam comprises welding the second sheet to the framework.

11. The method according to claim 9, wherein forming the second seam further comprises welding the second sheet to the sheet.

12. A product produced by a process, the process comprising:
forming a framework of a tank, wherein the framework comprises a first end plate, a second end plate and at least one interior wall;
placing a portion of a sheet in contact with the framework of the tank, such that the sheet circumscribes a portion of a periphery of the first end plate or the second end plate, and such that the sheet circumscribes a portion of a periphery of the at least one interior wall;
wherein the sheet is sized such that a first end of the sheet defines a portion of a first surface of the tank and a second end of the sheet defines another portion of the first surface of the tank;
wherein a portion of the sheet disposed between the first end and the second end defines a portion of a second, opposing surface of the tank; and
welding the sheet to the framework, wherein a bead of weld is formed on an exterior of the tank.

13. The product produced according to the process of claim 12, the process further comprising:
attaching a flange to an exterior of the at least one interior wall; and
welding the sheet to the flange.

14. The product produced according to the process of claim 12, the process further comprising:
attaching the first end plate to a first transverse interior wall;
attaching the second end plate to a second transverse interior wall; and
attaching the first transverse interior wall and the second transverse interior wall to the at least one interior wall.

15. The product produced according to the process of claim 12, the process further comprising:
placing a plate over an edge of the at least one interior wall on the first surface of the tank; and
wherein the plate is juxtaposed between the first end and the second end of the sheet.

16. The product produced according to the process of claim 12, the process further comprising:
placing a portion of a second sheet in contact with the framework of the tank, such that the second sheet circumscribes a portion of a periphery of the first end plate or the second end plate, and such that the second sheet circumscribes a portion of a periphery of the at least one interior wall;
welding the second sheet to the framework, wherein a bead of weld is formed on an exterior of the tank.

17. The produced according to the process of claim 16, wherein welding the second sheet to the framework further comprises welding the second sheet to the sheet.

18. The product produced according to the process of claim 12, the process further comprising:

forming a first opening in the sheet, wherein the first opening is substantially aligned with the periphery of the first end plate when the sheet is placed in contact with the framework of the tank;

forming a second opening in the sheet, wherein the second opening is substantially aligned with the periphery of the second end plate when the sheet is placed in contact with the framework of the tank; and

forming a third opening in the sheet, wherein the third opening is substantially aligned with the periphery of the at least one interior wall when the sheet is placed in contact with the framework of the tank;

wherein the sheet is welded to the framework of the tank through the first opening, the second opening, and the third opening.

19. A tank, comprising:

a first end plate and a second plate, wherein the first end plate and the second end plate are substantially planar;

at least one interior wall, wherein at least a portion of a periphery the at least one interior wall comprises a flange;

a sheet attached to a periphery of the first end plate or the second end plate, and another portion of the sheet attached to the flange by a seam located on an exterior of the tank;

a first end of the sheet defining a portion of the first surface of the tank and a second end of the sheet defining another portion of the first surface of the tank; and

wherein a portion of the sheet juxtaposed between the first end and the second end comprises a portion of an opposing, second surface of the tank.

20. The tank of claim 19, wherein the sheet comprises a corrosion resistant metal.

21. The tank of claim 19, further comprising:
a top plate covering a portion of the at least one interior wall; and
wherein the top plate is located in a portion of an opening formed between the first end and the second end of the sheet.
22. The tank of claim 19, wherein the flange comprises a T-flange or an L-flange.
23. The tank of claim 19, further comprising a second sheet attached to the periphery of the first end plate or the second plate, and another portion of the second sheet attached to the flange by a seam located on an exterior of the tank.
24. The tank of claim 19, wherein a cross-section of the tank has a generally rectangular shape and the sheet comprises a section of an exterior wall of the tank, the section comprising a portion of at least three sides of the generally rectangular shape.
25. The tank of claim 24, wherein the first sheet comprises a section of an exterior wall of the tank, the section comprising a portion of at least four sides of the generally rectangular shape.
26. The tank of claim 19, wherein the sheet is attached to the periphery of the first end plate and the second end plate.
27. The tank of claim 26, further comprising:
a first opening in the sheet, wherein the first opening is substantially aligned with the periphery of the first end plate;
a second opening in the sheet, wherein the second opening is substantially aligned with the periphery of the second end plate; and
a third opening in the sheet, wherein the third opening is substantially aligned with the flange of the at least one interior wall.

28. The tank of claim 27, wherein:
the sheet is attached to the first end plate by a seam formed between an inside edge of the first opening and the periphery of the first end plate;
the sheet is attached to the second end plate by a seam formed between an inside edge of the second opening and the periphery of the second end plate; and
the sheet is attached to the at least one interior wall by the seam formed between an inside edge of the third opening and the flange.

29. A method of fabricating a tank substructure, the method comprising:
forming a framework of a tank, wherein the framework comprises a first end plate, a second end plate and at least one interior wall;
sizing a sheet such that a first end of the sheet defines a portion of a first surface of the tank and a second end of the sheet defines another portion of the first surface of the tank when the sheet is placed in contact with the framework of the tank, wherein the sheet circumscribes a portion of a periphery of the first end plate, a portion of a periphery of the second end plate, and a portion of a periphery of the at least one interior wall;
forming a first opening, a second opening, and a third opening in the sheet, wherein the first opening is substantially aligned with the periphery of the first end plate, the second opening is substantially aligned with the periphery of the second end plate, and the third opening is substantially aligned with the periphery of the at least one interior wall;
placing the sheet in contact with the framework of the tank, such that the sheet circumscribes a portion of the periphery of the first end plate, the second end plate, and the at least one interior wall, such that a first end of the sheet defines a portion of a first surface of the tank and a second end of the sheet defines another portion of the first surface of the tank, wherein a portion of the sheet disposed between the first end and the second end defines a portion of a second, opposing surface of the tank;
welding an inside edge of the first opening to the periphery of the first end plate;
welding an inside edge of the second opening to the periphery of the second end plate; and
welding an inside edge of the third opening to the periphery of the at least one interior wall;
wherein the welding is performed from an exterior of the tank substructure.

30. The method according to claim 29, further comprising:
placing a plate over an edge of the at least one interior wall on the first surface of the tank;
wherein the plate is juxtaposed between the first end and the second end of the sheet.

31. The method according to claim 29, further comprising:
attaching a transverse member to the first end plate or the second end plate and the at least one
interior wall, wherein the transverse member is substantially co-planar with the sheet.